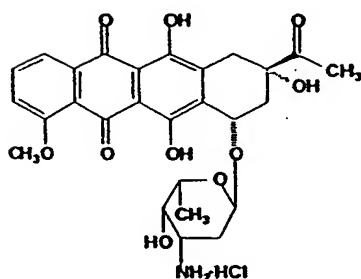


DOXORUBICIN



DAUNORUBICIN

FIG. 1. Structure of Doxorubicin and Daunorubicin

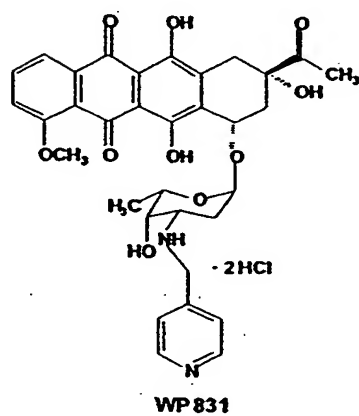
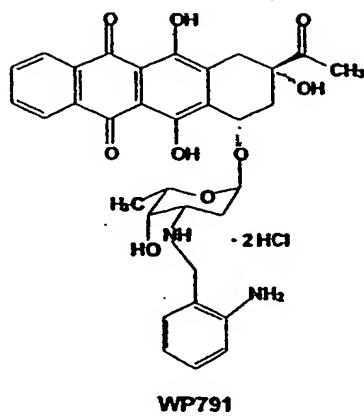
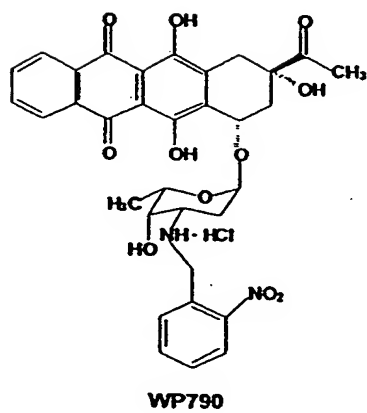


FIG. 2 Structure of WP831

**FIG. 3 Structure of WP791****FIG. 4 Structure of WP790**

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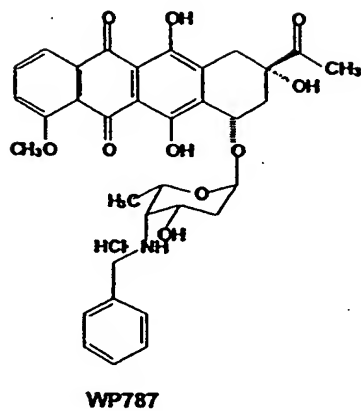


FIG. 5 Structure of WP787

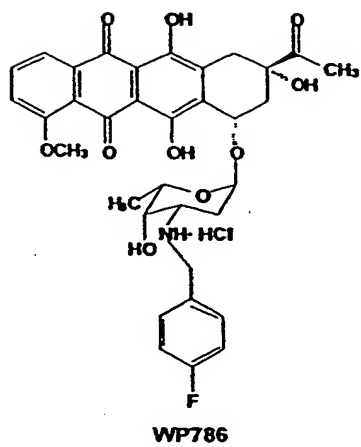
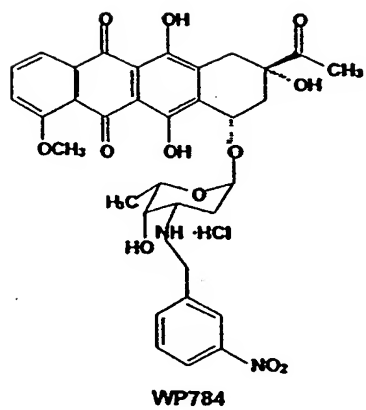
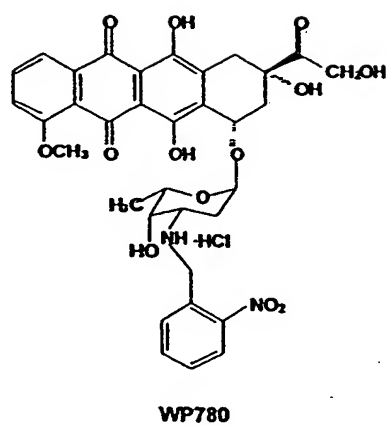


FIG. 6 Structure of WP786

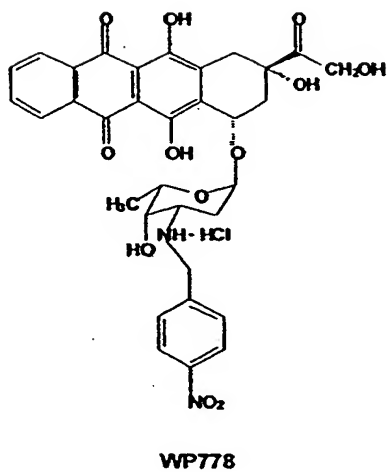
**FIG. 7 Structure of WP785**



**FIG. 8 Structure of WP784**



**FIG. 9 Structure of WP780**



**FIG. 10 Structure of WP778**

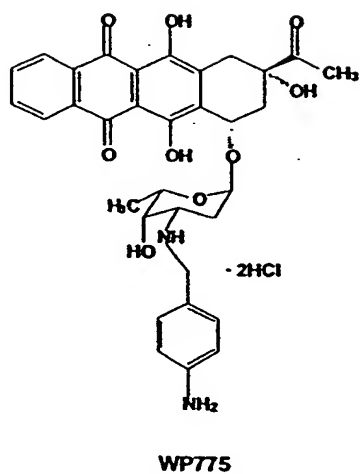


FIG. 11 Structure of WP775

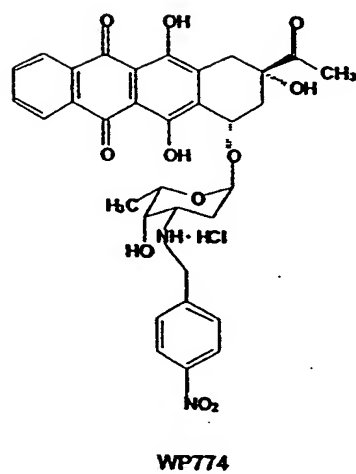


FIG. 12 Structure of WP774

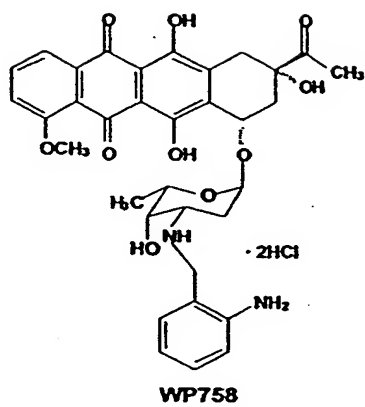


FIG. 13 Structure of WP758

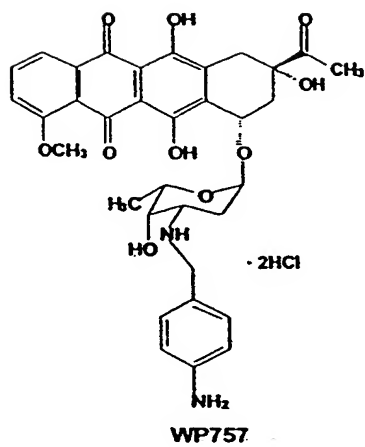


FIG. 14 Structure of WP757

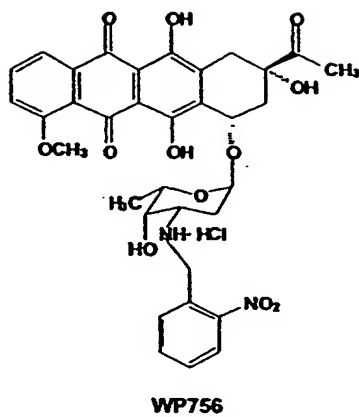


FIG. 15 Structure WP756

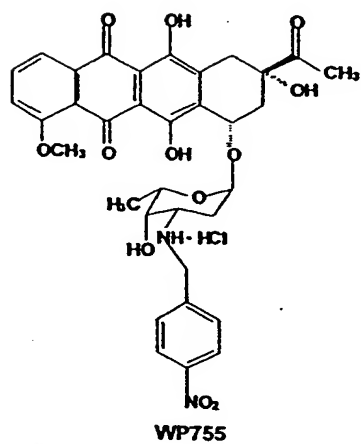


FIG. 16 Structure WP755



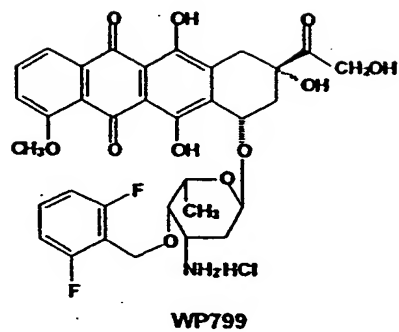


FIG. 17 Structure of WP799

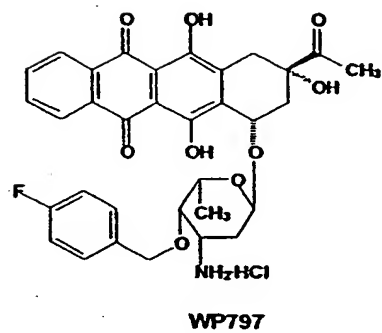
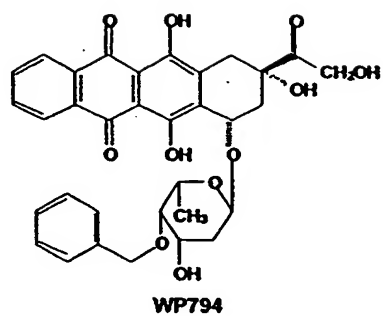
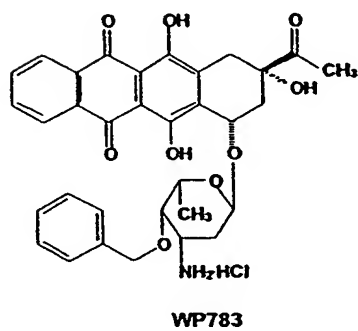
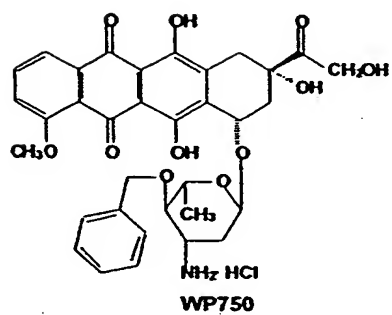
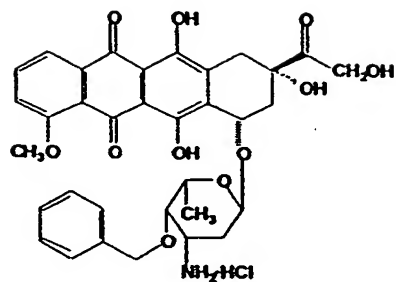


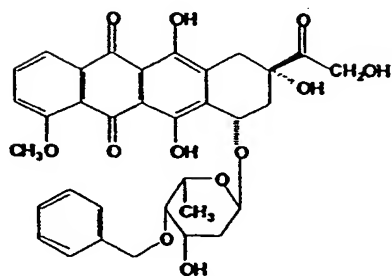
FIG. 18 Structure of WP797

**FIG. 19** Structure of WP794**FIG. 20** Structure of WP783**FIG. 21** Structure of WP750



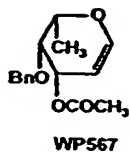
WP744

FIG. 22 Structure of WP744



WP727

FIG. 23 Structure of WP727



WP567

FIG. 24 Structure of WP567

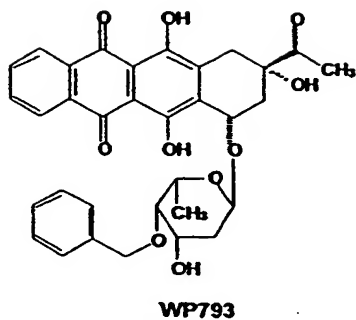


FIG. 25 Structure of WP793

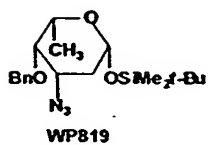


FIG. 26 Structure of WP819

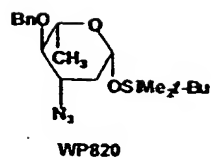


FIG. 27 Structure of WP820

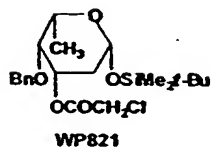


FIG. 28 WP821

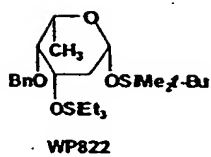


FIG. 29 Structure of WP822

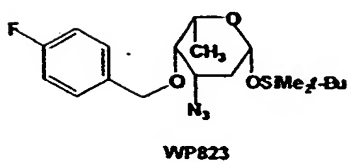


FIG. 30 Structure of WP823

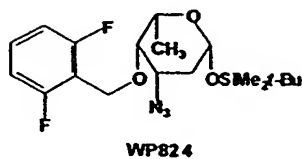


FIG. 31 Structure of WP824

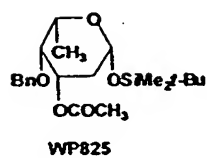


FIG. 32 Structure of WP825

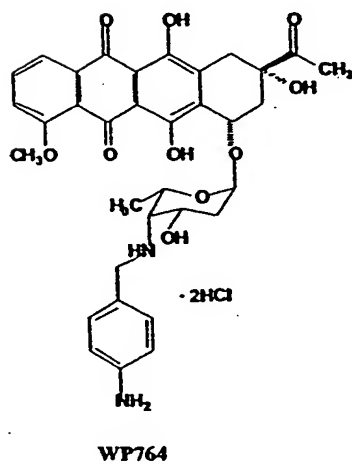
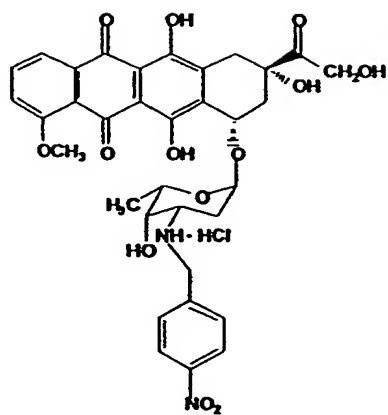


FIG. 33 Structure of WP764



WP765

FIG. 34 Structure of WP765

FIG. 35

## SYNTHESIS OF 4'-O-BENZYLATED ANTHRACYCLINES FROM 4-O-BENZYLATED GLYCALS

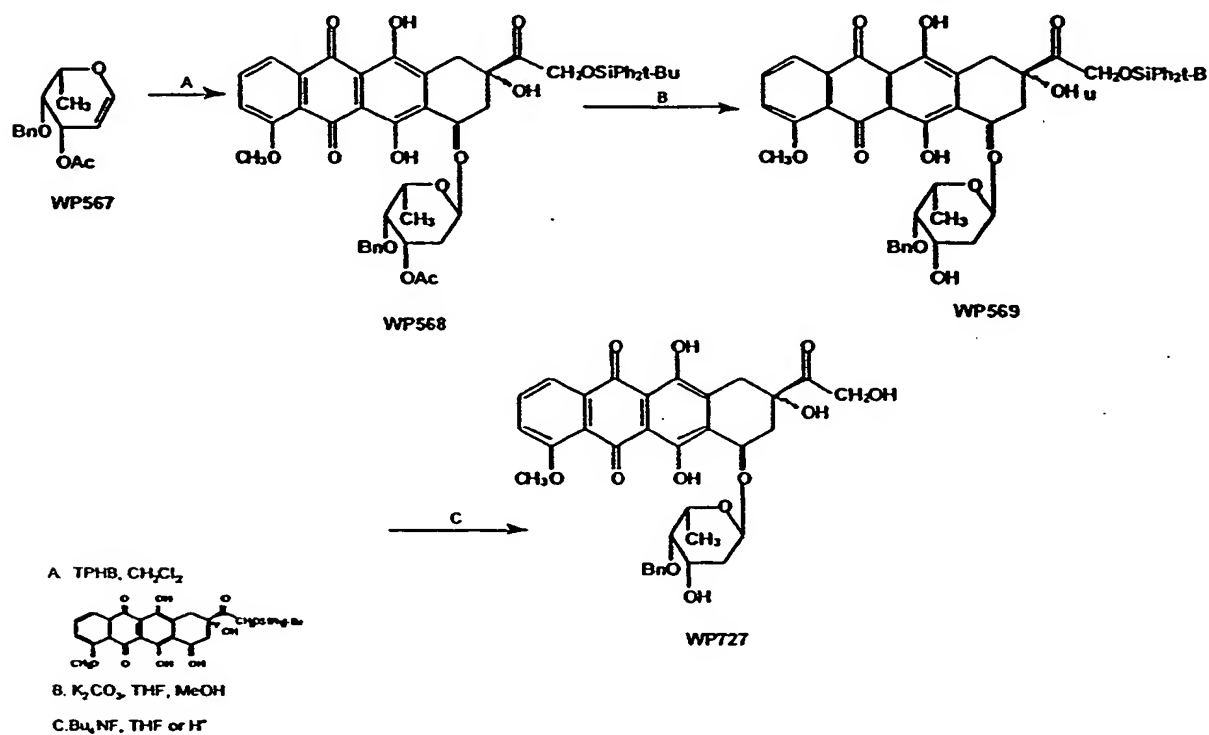




FIG. 36

## SYNTHESIS OF 4'-O-BENZYL-3'-AMINO-ANTHRACYCLINES

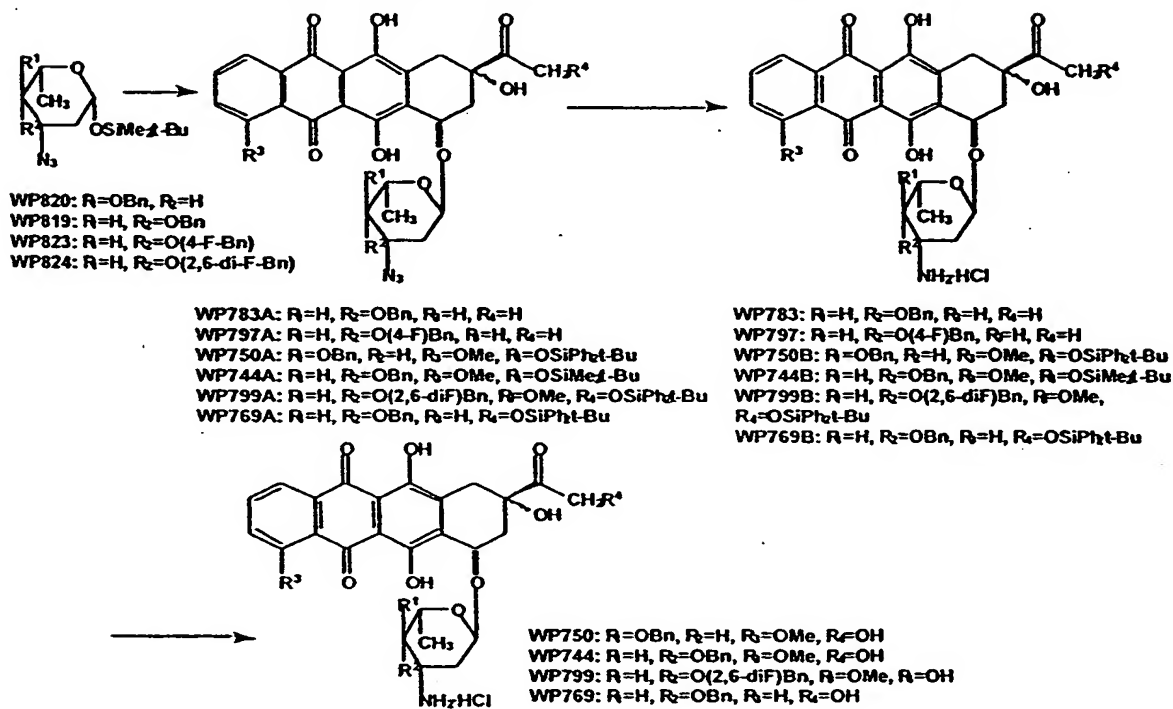
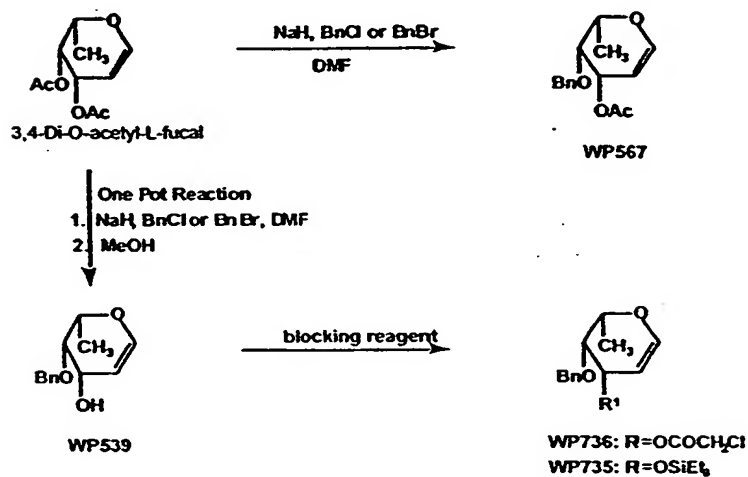


FIG. 37

SYNTHESIS OF 4-O-BENZYL-GLYCALS AND ITS  
3-O-DERIVATIVES

The same procedure was used for the synthesis of other O-benzylated glycals.

FIG. 38

SYNTHESIS OF 4'-O-BENZYL-3'-DEAMINO-ANTHRACYCLINES  
FROM 1-O-SILYLATED 4-O-BENZYL-HEXOPYRANOSES

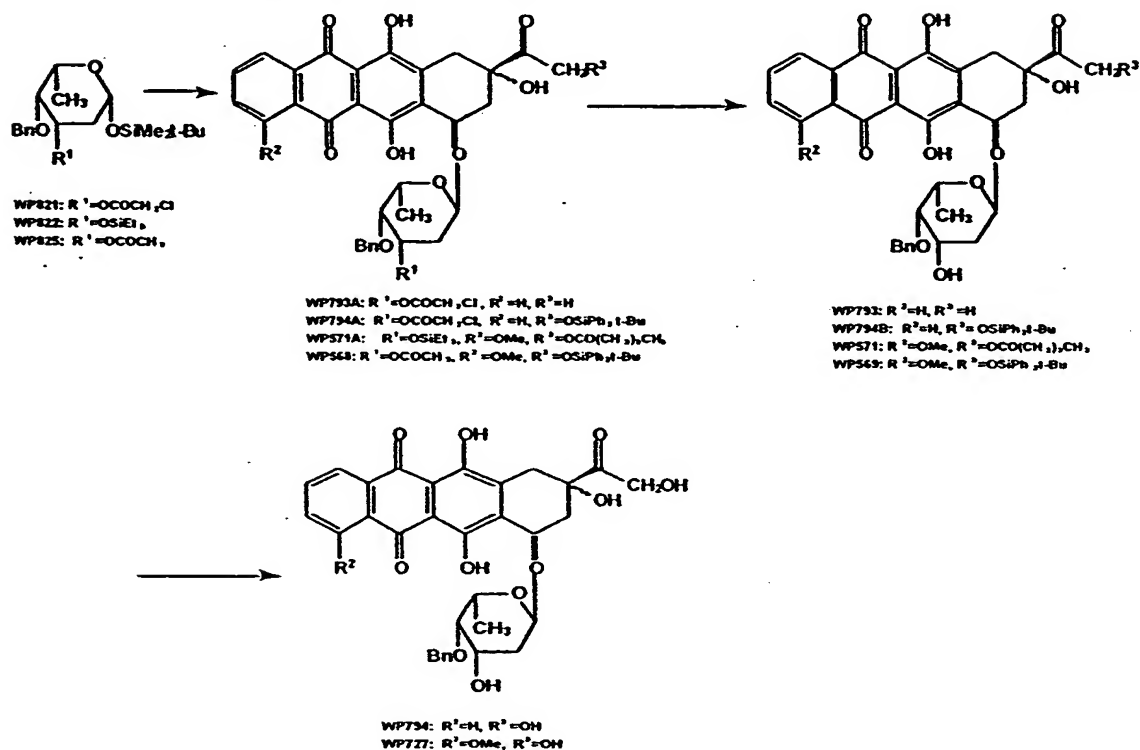
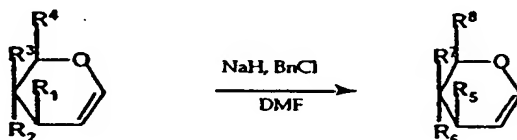


FIG. 39

## Examples of Selective Alkylation of Acylated Glycals



L-Rhamnal: WP-  $R^1=OAc$ ,  $R^2=H$ ,  $R^3=OAc$ ,  $R^4=Me$ ,  $R^5=OH$ ,  $R^6=H$ ,  $R^7=OBn$   
 L-Rhamnal: WP-  $R^1=OAc$ ,  $R^2=H$ ,  $R^3=OAc$ ,  $R^4=Me$ ,  $R^5=OAc$ ,  $R^6=H$ ,  $R^7=OBn$   
 L-Fucal: WP-  $R^1=OAc$ ,  $R^2=OAc$ ,  $R^3=H$ ,  $R^4=Me$ ,  $R^5=OH$ ,  $R^6=OBn$ ,  $R^7=H$   
 L-Fucal: WP-  $R^1=OAc$ ,  $R^2=OAc$ ,  $R^3=H$ ,  $R^4=Me$ ,  $R^5=OAc$ ,  $R^6=OBn$ ,  $R^7=H$   
 L-Xylal: WP-  $R^1=OAc$ ,  $R^2=H$ ,  $R^3=OAc$ ,  $R^4=H$ ,  $R^5=OAc$ ,  $R^6=H$ ,  $R^7=OBn$



D-Glucal: WP-  $R^1=OAc$ ,  $R^2=OAc$ ,  $R^3=H$ ,  $R^4=CH_2OAc$ ,  $R^5=OH$ ,  $R^6=OBn$ ,  $R^7=H$ ,  $R^8=CH_2OH$   
 D-Glucal: WP-  $R^1=OAc$ ,  $R^2=OAc$ ,  $R^3=H$ ,  $R^4=CH_2OAc$ ,  $R^5=OAc$ ,  $R^6=OBn$ ,  $R^7=H$ ,  $R^8=CH_2OAc$   
 D-Galactal: WP-  $R^1=OAc$ ,  $R^2=H$ ,  $R^3=OAc$ ,  $R^4=CH_2OAc$ ,  $R^5=OH$ ,  $R^6=H$ ,  $R^7=OBn$ ,  $R^8=CH_2OH$   
 D-Galactal: WP-  $R^1=OAc$ ,  $R^2=H$ ,  $R^3=OAc$ ,  $R^4=CH_2OAc$ ,  $R^5=Ac$ ,  $R^6=H$ ,  $R^7=OBn$ ,  $R^8=CH_2OA$   
 D-Arabinat: WP-  $R^1=OAc$ ,  $R^2=H$ ,  $R^3=OAc$ ,  $R^4=H$ ,  $R^5=OH$ ,  $R^6=H$ ,  $R^7=OH$ ,  $R^8=H$

FIG. 40

## Synthesis of 3'-azido-sugars and its 4-O-benzylated derivatives

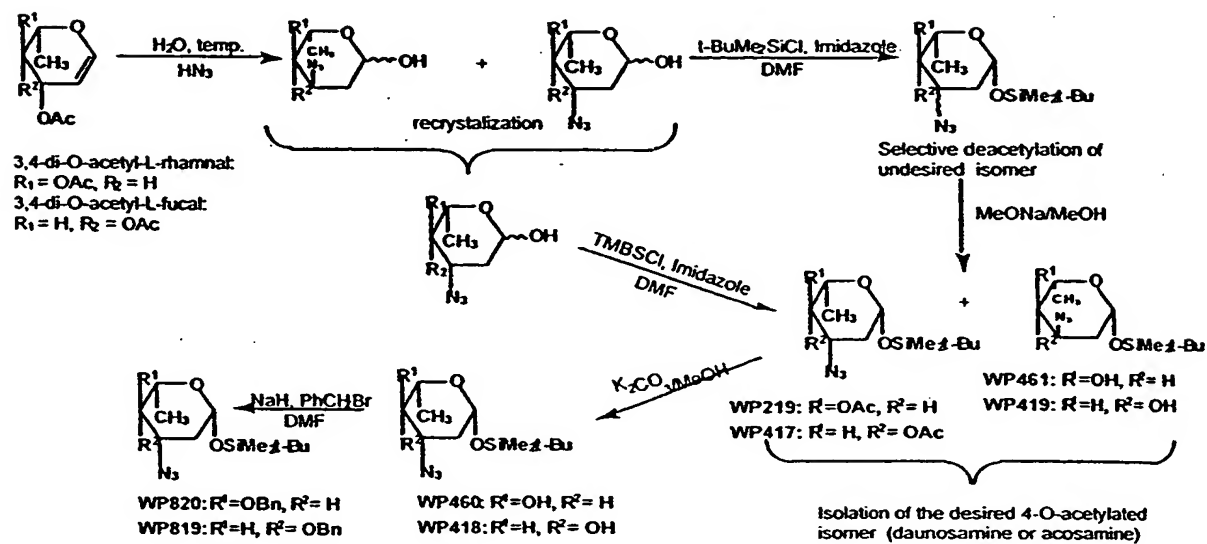


FIG. 41

ALTERNATIVE SYNTHESIS OF 3-AZIDO-4-O-BENZYL-DAUNOSAMINE FROM 3-AZIDOACOSAMINE

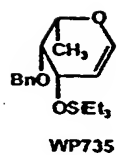
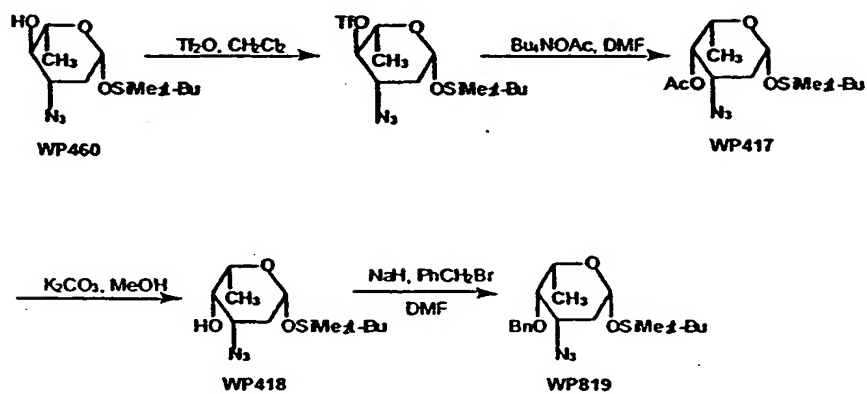


FIG. 42 Structure of WP735

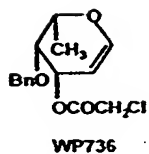


FIG. 43 Structure of WP736